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NUTRITIONAL PROBLEMS IN CHILE

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Though a good many investigations have been made of the nutritional conditions of many strata of the population, it is yet difficult to appreciate to what degree malnutrition is prevalent in Chile.

Only recently, nutrition surveys have covered the physical examination of the individuals and practically all we know is through dietary surveys that can show only one side of the picture. Limited as it may be, this picture is a challenging one, and the available information shows us some urgent characteristic features of our situation which must be resolutely faced in any public health program.

Chileans are high "wheat derivative eaters"; more than 50% of their calories come from this cereal, specially in form of bread. You would have trouble if you didn't figure up to 15 oz. of bread in a daily menu for workmen.

No "sugar problem" yet has developed and our average diet runs about 1½ to 2 oz. a day. Fat calories are low and only in the higher income brackets you may find as much as 1 oz. of oil or animal fats as such in the diet, including butter.

Our main problem lies in the very low consumption of protective foods. Meat is scarce and expensive and cannot be present more than once or twice a week in the workmen's diet. Eggs are considered as a luxury, though actually there is an appreciable progress in poultry raising.

If people do not eat sufficient vegetables and fruits it is only due to economical limitations; there is always willingness to consume them, though still much must be done to stimulate the use of raw salads; the still high incidence of typhoid hinders the action of nutritionists in this campaign. White potatoes are very popular and the average diet contains 8 to 10 oz. a day.

But, if something gives a real preoccupation to nutritionists it is our dairy situation. Studies on our production figures show us that if every child under 12 years did receive a pint of milk daily there would be nothing left for the adult population. The overall average consumption runs about 3 oz. a day, which means that our diet is low in calcium and riboflavin.

If something saves us a bit in these aspects it is our good habit of having plenty of dried legumes; any menu includes at least 8 oz. a week and in rural areas this figure goes up easily to servings of 4 and 5 oz. But with no molasses; that would be a death deserving crime in Chilean cooking.

Infantile and Maternal Undernourishment

In the mind of the nutritionist the main effort must be given to solve maternal and infantile undernourishment. In this field it is worthwhile to quote the directions issued by the National Public Health Services, that make it compulsory for any school lunch program to spend, before anything else, enough money to furnish at least a pint of milk to children. This measure is considered the most advantageous one possible to improve the nutritional status of those children. A good survey made last year by Riquelme on 300 children allows the author to show wonderful improvement in height, weight and general health in the group receiving extra milk.

To give practical education on nutrition, a plan for home demonstrations is being carried on by the School of Public Health in one community of Santiago. Their experience on the matter shows encouraging results.

Doctor Santa Maria

The Ministry of Instruction has also realized its responsibility and the new educational programs give, at the different grades, a fairly good general knowledge on nutrition. Clear, simple and practical ideas expressed in every day language are replacing the old tiresome academic lectures.

We may summarize that since the pioneers' work of Calvo Mackenna, Cruz Coke and many others in the 1930's emphasized amongst us the importance of nutrition, a keen interest in the problem has been awakened as much in the medical profession as in the laity. The road they opened is now being paved by many activities developed not only by the governmental agencies but also by private welfare institutions, now that they have become aware of the influence that poor nutrition has on the well-being and prosperity of the country.

Glances AT NUTRITION RESEARCH

At present, two phases of nutrition are being given considerable attention by research workers. One of these is the physiological effect of variations in diet; the other is the effect of processing, handling, and method of cooking on the nutritive value of foods. The following abstracts illustrate these trends.

Caffeine and Peptic Ulcer—Increased secretion of gastric juice was noted in human subjects when caffeine-containing beverages, such as coffee and cola drinks, were administered. The addition of cream to coffee reduced the stimulatory effect by 40 per cent. Coffee substitutes, though of lower caffeine content, also produced an increase in gastric secretion.

In peptic ulcer patients prolonged output of acid by the stomach was observed following a test dose of caffeine or caffeine-containing beverages. This response was noted in only five of the so-called normal subjects; of these, one subsequently developed an ulcer, and three developed the ulcer type of distress. The authors indicate that there is a good possibility that the excessive use of caffeine-containing beverages may contribute to the formation of peptic ulcers in susceptible people. Experimental evidence on cats shows that relatively large doses of caffeine may cause ulcers of the stomach.

—J. Am. Med. Assn. 126:814 (Nov.) 1944.

B-Complex and Muscular Endurance—Muscular endurance in healthy young men was decreased greatly when a diet low in B-complex vitamins, and particularly low in thiamin, was fed. The effect was noticeable within 10 to 14 days. The provision of a 98% whole wheat bread increased the muscular endurance significantly. When pure thiamine hydrochloride was added to a diet low in the B-complex, marked improvement in endurance was noted. These improvements in performances were observed only when B-complex intakes had been subnormal.

—J. Nut. 28:24 (Oct.) 1944.

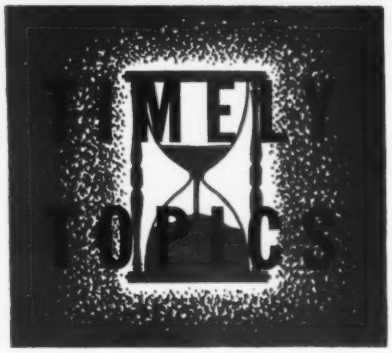
Protein Needs of Blood Donors — A study of the hemoglobin and red blood cell regeneration following blood donations by young college women revealed that diets containing 50 grams of protein daily were inadequate. By raising the protein intake level to 75 grams with the addition of milk and cheese or meat, regeneration took place more quickly. However, even after 10 weeks, full recovery had not occurred. The authors state that their results "justify not only suggesting but urging the woman who is a blood donor, or who has hypochromic anemia and needs to build hemoglobin, to include in her diet additional quantities of meat and milk or other foods rich in animal protein and iron."

—J. Am. Diet. Assn. 20:747 (Dec.) 1944.

Ascorbic Acid in Canned Vegetables—No definite destruction of ascorbic acid could be found after boiling either canned asparagus or canned tomatoes for 30 minutes. The vitamin of those foods remained intact even after the application of heat for one and one half hours. The presence of antioxidants apparently protected the ascorbic acid.

Spinach retained about three fourths of its ascorbic acid during the initial boiling but, during a subsequent period of one and one half hours of heating, showed great losses. Canned beans, carrots, and corn retained only from one third to two thirds of their ascorbic acid. Since much of the vitamin was in solution retentions ranging from only 7 to 41 per cent were recorded when the cooking water was discarded. The methods of cookery used were similar to those employed at Army posts.

—J. Am. Diet. Assn. 20:752 (Dec.) 1944.



Because of the dramatic aspects of international nutrition at this time, brief resumés of the careers and experiences of the three authors of this issue are presented.

Dr. Julio V. Santa Maria, author of the leading article is head of the Division of Nutrition of the new School of Public Health at the "Universidad de Chile". In 1942-43 he was granted a Rockefeller fellowship and studied nutrition at Harvard School of Public Health.

Dr. Martha Kramer was chairman of the Department of Home Economics, Yenching University, Peiping from 1937 until the attack on Pearl Harbor when she was interned at Wei Hsien, Shantung. Since her return on the Gripsholm, September, 1943, she has resumed her duties at Kansas State College in nutrition research. Dr. Clara Nutting now of Scarritt College, formerly a medical missionary in North China, collaborated in preparing the material for this article.

Dr. Harold C. Stuart has served as Medical Advisor to the American Red Cross during the first and second World Wars. In 1942 when serving the Red Cross in France he was interned at Baden-Baden, Germany. At this time he was investigating the state of child nutrition in unoccupied France. Now returned to this country, Dr. Stuart is Director of the Department of Maternal and Child Health at the Harvard School of Public Health.

THE WAR'S EFFECT ON NORTH CHINA DIETS

By Martha M. Kramer, Professor of Food Economics and Nutrition
School of Home Economics, Kansas State College, Manhattan

Food has always been a major problem in North China—a problem pressing more and more heavily on the masses in this, the fifth, decade of the century. In fact, a pleasantly plump Chinese citizen would provoke the flattering comment from passersby: Fa fu la! — "He has been blessed!"

For centuries these industrious people have relied upon grains and grain products for most of their energy requirement. Country and working-class diets had for a basis corn, millet and kao-liang (literally, "tall grain", a type of sorghum). All are common grains, requiring only moderate cooking periods. Cooking time is important on account of the relative scarcity of fuels. Legumes supplemented the grains.

Meat was always relatively expensive and thought not necessary for its nutritive value. Pork lends itself to many methods of preparation; even a small piece, fried and seasoned, provides a delicious base for vegetable dishes. Some of the common vegetables found on many Chinese tables are radishes, garlic, leeks, cabbage, turnips, sweet potatoes, cucumbers and spinach. In North China vegetables are desired for every meal, but fruits are treated as distinct extras—for gifts, treats for children and feast courses.

Dairy products were not used in ordinary Chinese diets. Cows were commonly beasts of burden, and even in normal times, the fat content of the Chinese diet is low. This was the prewar picture of the North China food situation.

Modifications Caused by the War

Early after military occupation of North China, observers noted danger signals in food production. Food was shipped out of the country, land was requisitioned by the military for nonfood crops (poppies, cotton) and food prices began to soar. Incomes and wages did not increase in proportion to the advance in food costs, so that people were appalled at the new price levels.

In time of desperate need, crude peanut or soybean oil cake, usually sold for fertilizer or stock food, has saved thousands of people. Fat has been removed, but minerals and protein remain. However, by late spring of 1943, press cake was $1.55 Local Currency per pound, compared with the price of 5 cents two years before.

These frightening food shortages, affecting particularly the necessary grains and legumes, were due in part to: abnormally low rainfall in 1942, reduction of cultivated area, labor shortage because of workmen being drafted for military projects, curtailment of grain shipments from the North, military requisitioning of foods, and paralyzing meat regulations.

There has been rationing, but the issues of food were irregular and of mixed lots so that rice or flour could be purchased only if the shopper would take with it a quantity of costly poor quality potatoes or gritty meal. Some issues would seem so dear that many would pass them up. Further, rationing often disregarded young children, counted small school children and persons over 60 years at half rate, and failed to provide for the real needs of active workers.

By 1941 deficiency diseases were appearing in some clinics. Scurvy and eye disturbances were seen among city shop apprentices, who were provided with bread and board, according to ancient custom. Patients with peripheral nerve disturbances, never before prevalent in that area, increased in numbers probably as early manifestations of thiamine shortage.

Another clinic reported among farmers many cases of apparent riboflavin deficiency with cracking of the skin at the corner of the mouth and even some increased pigmentation about the nose. Subjects improved after eating peanuts in quantity. The diet had been made up largely of the popular mixed soybean-corn meal, likely a skimpy mixture with less than the usual 20 per cent soybean. No evidences of thiamine shortage were noted, whole corn probably supplying reasonable amounts of thiamine.

Cold days in the winter of 1942-1943 found more than the usual number of dead in the city streets. Diets had been inadequate in almost every respect. Conditions are now far worse.

If or when "normal conditions" are restored after the war, there will be a painful period of adjustment of food supplies in an impoverished and weakened region.

THE NUTRITIONAL STATE OF CHILDREN IN UNOCCUPIED FRANCE

By Harold C. Stuart, M. D., Director, Department of Maternal and Child Health
Harvard School of Public Health

During the fall of 1942 I organized studies of the nutritional state of children in Unoccupied France in connection with the program of the American Red Cross for the distribution of milk to children who seemed to be in the greatest need of supplemental feedings.

Arrangements were made with faculty members of the medical schools of Lyons, Clermont-Ferrand and Montpellier and with the Institut de Recherches d'Hygiene in Marseilles to carry out a set of identical examinations.

The examination planned for each child included clinical observations, body measurements, and the taking of X-ray films and blood samples. The studies of the latter included determinations of hemoglobin concentration and red cell count as well as several biochemical assays.

The results of many of these determinations were never received, and this report deals principally with body measurements and with certain aspects of X-ray findings of 11-year-old children studied in Marseilles.

A review of the findings of Kuhlman and his collaborators at the Institut de Recherches d'Hygiene in Marseilles, interviews with physicians and health officers qualified by knowledge of actual conditions, and observations made during travels in Unoccupied France between September 3 and November 7, 1942; augmented the information obtained from the American Red Cross studies. These findings led to certain conclusions regarding the state of nutrition of children prior to the inauguration of the relief program.

The majority of children in the large cities were taking diets which were very inadequate in total calories. Diets were for the most part deficient in pro-

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—that dairy cows like to eat oranges, grapefruit and lemons? Dairy cows can be fed, as part of their ration, citrus pulp and citrus fruits.

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—that roots of plants often poison themselves if some way is not found to remove the carbon dioxide that collects due to plant metabolism?

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—that one of the most experienced air travellers is the cow? Many cows have been transported to Alaska via the air route in the last five years.

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—that Great Britain is to have ice cream again after four long years of being without it?

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—that walnuts from the Zakatalsk forest in Russia are 40 to 50 times richer in vitamin C than oranges, lemons and tangarines?

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—that milk bars draw a 10-to-1 patronage from service men over other types of bars?

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—that baked sweet potatoes in China are sold in the streets by venders much like we sell pop corn?

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—that avocados are a good source of vitamin K and the B-complex vitamins especially niacin?

THINGS YOU'LL LIKE TO READ

A YARDSTICK FOR SCHOOL LUNCHES — Nutrition Education Series, Pamphlet No. 4. U. S. Government Printing Office. Washington 25, D. C. 1944. 10 cents.

This pamphlet includes appraisal suggestions, appraisal forms and source materials for all school lunch managers on (1) operation of the school lunch program, (2) management of the program, (3) community interest and participation and (4) physical facilities in the lunch room. It is of interest to all who wish to evaluate school lunch programs.

YOUR WEIGHT-SIGNPOST TO HEALTH AND LONGER LIFE — E. Neige Todhunter, Ph. D. School of Home Economics, University of Alabama. 1944. 10 cents.

Excellent practical suggestions are given for those who wish to reduce by employing sound nutrition methods. This booklet will be of use to lay people as well as others. It is simply written, contains a discussion of weight control, a table of the calorie values of foods and sample reducing menus.

NUTRITION IN HEALTH AND DISEASE — Lenna F. Cooper, Edith M. Barber and Helen S. Mitchell. J. B. Lippincott Company. 1944. $3.50.

Revision of this book has brought it in focus with our present day needs. It will be of particular interest to dietitians, nurses, nutritionists and college students with its chapters on normal and abnormal nutrition, health service, food selection, cookery and up-to-date information on the subject of vitamins. A glossary with pronounciations and definitions as well as tables of food values has been included.

FAMILY FOOD CONSUMPTION IN THE UNITED STATES—Miscellaneous Publication No. 550. U. S. Government Printing Office, Washington 25, D. C. 1944. 20 cents.

Diets of families in the United States are analyzed for quantity of food, nutritive value of the diets, and the money value of the food. This publication will be of interest to all persons concerned with the adequacy of food supplies in this country.

THE NUTRITIONAL STATE OF CHILDREN IN UNOCCUPIED FRANCE

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tein. They were also lacking in calcium. The vitamin content of the diets varied with locations and between seasons, but the probabilities were that the provision of vitamins A, C and D had been quite generally unsatisfactory.

There had been considerable increase in the incidence of diarrhea during the summer of 1942 among infants and young children in Unoccupied France, due principally to a deterioration in the quality and quantity of milk. Young children had in other respects enjoyed customary health and were for the most part in fairly good nutritional state. From 8 years onward, but especially between 12 and 18 years of age, there had been a noticeable increase in the number of children showing evidence of undernutrition. Chronic fatigue, lack of vigor, and inactivity had gradually become more marked and widespread.

There was considerable evidence that as a result of inadequate diets, children were automatically reducing their requirements, not only by reducing their activity to a minimum but also by slowing their pace of growth and development. Measurements showed that the French children studied were between 1 and 1½ years behind American children of the same age in body size and that they were especially retarded in the development of muscles. The patterns of development of bones as seen in X-ray films indicated a year or more retardation on the average.

No important increase in the incidence or severity of rickets had been noted and other deficiency diseases had remained uncommon. Some increase in the incidence of anemia, presumably of the nutritional type, and occasional cases showing protein deficiency had been noted. The blood levels of vitamins A and C had been continually low in samples taken at research centers.

It may be concluded that a state of general moderate undernutrition and retardation of growth was widespread in Unoccupied France in the fall of 1942, at least among children over 10 years of age. Under these circumstances it was felt that the supplement of 250 gms. of milk daily which the American Red Cross was planning to give to children between 10 and 15 years of age would be helpful.